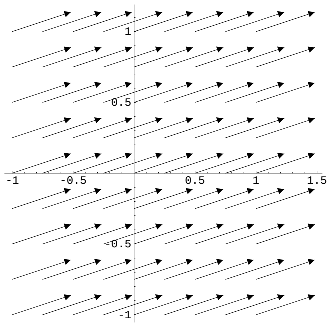
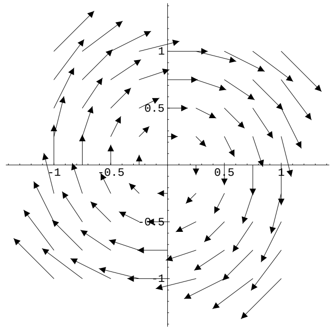
Check the box which match the formulas of the vector fields with the corresponding picture I,II,III or IV.

Vectorfield	I	II	III	IV
$\vec{F}(x,y) = \langle 1, x \rangle$				
$\vec{F}(x,y) = \langle 3y, -3x \rangle$				
$\vec{F}(x,y) = \langle 7, 2 \rangle$				
$\vec{F}(x,y) = \langle x, y \rangle$				

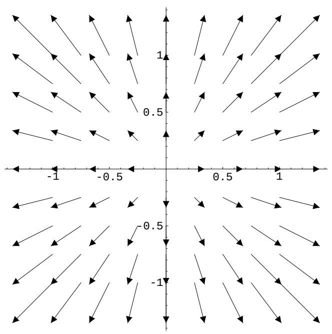
I



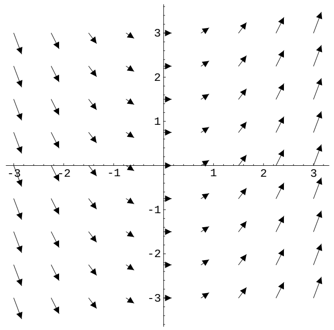
II



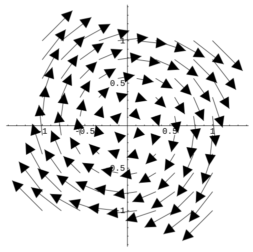
III



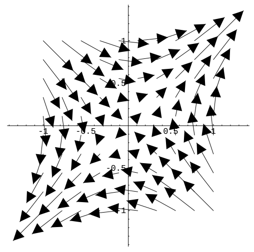
IV



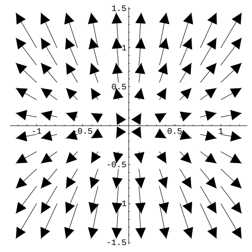
Match the vector fields and decide, which are gradient fields.



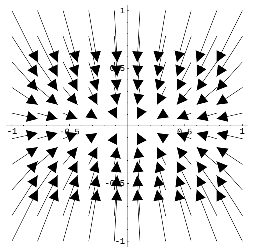
1



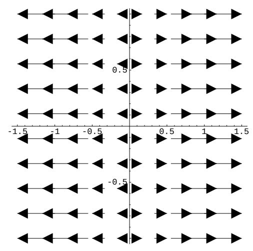
2



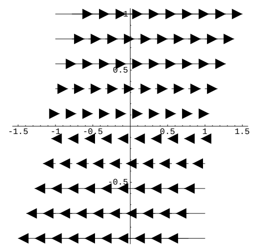
3



4



5



6

$F(x,y)$	1	2	3	4	5	6
$F(x,y) = (y, -x)$						
$F(x,y) = (x, 2y)$						
$F(x,y) = (y, x)$						
$F(x,y) = (x, 0)$						
$F(x,y) = (-x, -2y)$						
$F(x,y) = (y, 0)$						

Given a vector field $\vec{F} = \langle yx, x \rangle$ **and a curve** $C : \vec{r}(t) = \langle \cos(2t), \sin(2t) \rangle$ **for** $t \in 0, \pi$**. Find the line integral** $\int_C \vec{F}\, dr$**.**

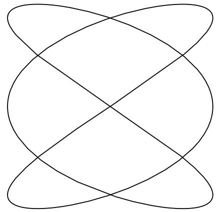
Which of the following vector fields are gradient fields?

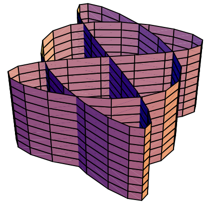
Enter I,II,III,IV,V,VI,VII,VIII here	Equation
	$\vec{F}(x,y) = \langle x^2, y^2 \rangle$
	$\vec{F}(x,y) = \langle y^2, x^2 \rangle$
	$\vec{F}(x,y) = \langle 5, 6 \rangle$
	$\vec{F}(x,y) = \langle (0, \sin(\sin(x)) \rangle$
	$\vec{F}(x,y) = \langle (0, \sin(\sin(y)) \rangle$
	$\vec{F}(x,y,z) = \langle x, y, z \rangle$
	$\vec{F}(x,y,z) = \langle -y, x, 1 \rangle$

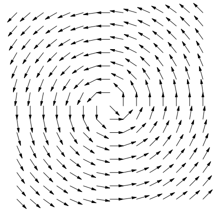
The parametrized curve $\vec{r}(t) = \langle (1+\cos^3(\theta)), (1+\sin^3(\theta)) \rangle$, where θ goes from 0 to 2π is called the asteroid. Find the line integral of the vector field $\vec{F}(x,y) = \langle x, y \rangle$ along the asteroid.

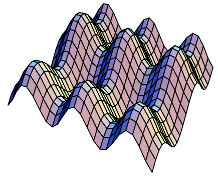
Hint. If you are in a Tue Th section, you might not have seen the short cut already.

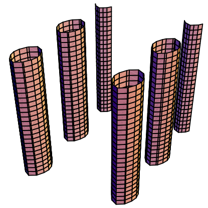
Match the objects with the pictures.

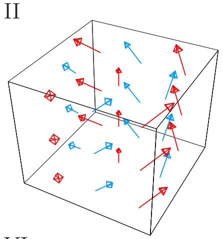

I

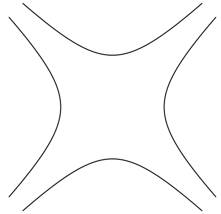

II

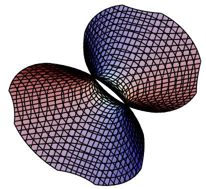

III


IV


V


VI


VII


VIII

Enter I,II,III,IV,V,VI,VII,VIII here	Equation
	$x^2 - y^2 + z^2 = 1$
	$\vec{r}(t) = \langle \cos(3t), \sin(2t) \rangle$
	$z = f(x,y) = \cos(3x) + \sin(2y)$
	$\vec{F}(x,y) = \langle -y/\sqrt{x^2+y^2}, x/\sqrt{x^2+y^2} \rangle$
	$\cos(3x) + \sin(2y) = 1$
	$\vec{F}(x,y,z) = \langle -y, x, 1 \rangle$
	$\vec{r}(u,v) = \langle \cos(3u), \sin(2u), v \rangle$
	$\{(x,y) \in \mathbf{R}^2 \mid \lvert x^2 - y^2 \rvert = 1\}$